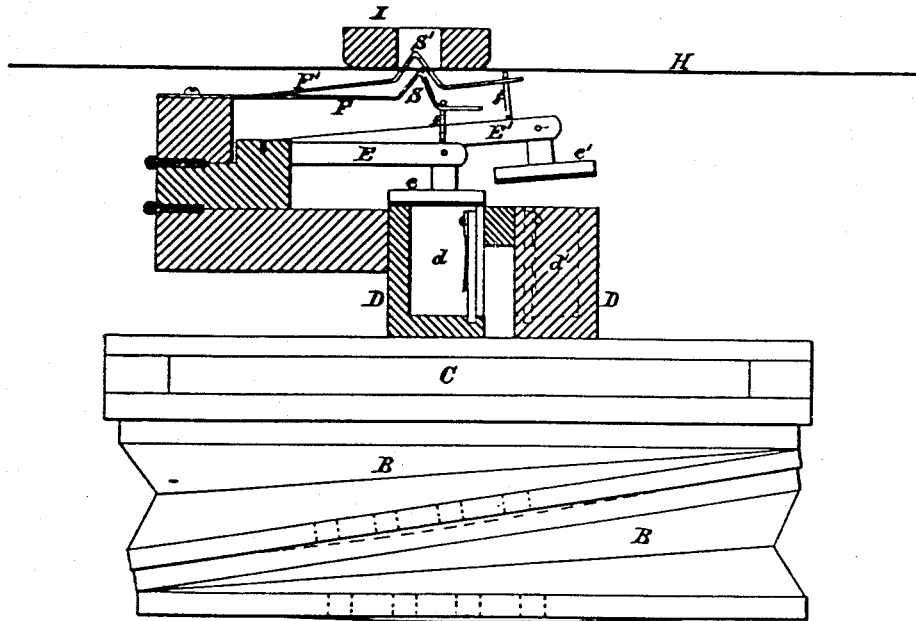


O. H. ARNO.
 Mechanical Musical Instrument.
 No. 213,604. Patented Mar. 25, 1879.



Witnesses:

E. A. Kemmenway
N. P. Lombard.

Inventor:

Oleiver H. Arno
by Geo. A. Arno
Marconi Maltbaens.

UNITED STATES PATENT OFFICE.

OLIVER H. ARNO, OF WILMINGTON, MASSACHUSETTS.

IMPROVEMENT IN MECHANICAL MUSICAL INSTRUMENTS

Specification forming part of Letters Patent No. 213,604, dated March 25, 1879; application filed January 20, 1879.

To all whom it may concern:

Be it known that I, OLIVER H. ARNO, of Wilmington, in the county of Middlesex and State of Massachusetts, have invented a new and useful Improvement in Mechanical Musical Instruments, which improvement is fully set forth in the following specification and accompanying drawing, in which the figure is a sectional elevation, representing the main features of my invention.

My invention relates to that class of musical instruments in which the music is produced automatically by means of a perforated sheet or strip of paper, or other flexible material, in connection with valves and reeds or other sound-producers.

It consists of a series of spring-fingers, arranged and adapted to lift a corresponding series of jacks, each jack having a valve attached to it, in combination with a sheet of paper, or other flexible material, having perforations cut therein, said spring-fingers and jacks both being arranged below and on the same side of said perforated sheet.

B is the bellows, and C the wind-chest, either of which may be constructed in any well-known form. D is the reed-chest, having the reeds *d d'* arranged in alternate positions in two rows. E E' are jacks, with the valves *e e'* attached to them. F F' are spring-fingers. *f f'* are hooks screwed into the jacks E E', and are bent at right angles, so as to rest on the upper side of the spring-fingers F F'.

The perforated paper H is held down against the spring-fingers F F' by the pressure-cap I. This pressure-cap I is provided with a series of holes corresponding to the series of cams *s s'* on the spring-fingers F F'. The perforated paper H holds down, or permits to rise, all or any of the spring-fingers F F', according to the position of the perforations. As the sheet H is moved along by any suitable means, and

the cams *s s'* come opposite the perforations, they slip up and through and carry with them the valves *e e'* through the medium of the intervening parts described. The valves *e e'* being arranged outside the reed-chest, and so as to close the openings to the reeds in the direction of the air, they are held to their seat by atmospheric pressure, so that all that is necessary, in addition to this, to secure good air-tight conditions is the weight of the valves, combined with that of the jacks, to which they are attached, so that the spring-fingers F F' need not be more than one-half the strength that would be required in the case where the valves are arranged in the inside of the wind-chest and opposite the direction of the air.

It is obvious that the lighter the spring-fingers F F' the less resistance they will offer to the sliding movement of the paper H, and the less will be the wear of the parts subjected to friction.

I am aware of the patent granted to Mason J. Matthews, in which jacks and valves similar to those herein described were employed, in connection with reeds arranged in a vertical position, and alternately in two rows, so that I do not claim any of the features set forth therein; but

What I claim, and desire to secure by Letters Patent, is—

The spring-fingers F F', arranged to lift the jacks E E' and valves *e e'* through the medium of the hooks *f f'*, in combination with the perforated paper H, all substantially as and for the purpose described.

As witness my hand this 16th day of January, 1879.

OLIVER H. ARNO.

Witnesses:

MASON J. MATTHEWS,
E. A. HEMMENWAY.